

PATENT ABSTRACTS OF JAPAN

(11)Publication number : 2001-154181

(43)Date of publication of application : 08.06.2001

(51)Int.Cl.

G02F 1/1335

G09F 9/00

(21)Application number : 11-342151

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(22)Date of filing : 01.12.1999

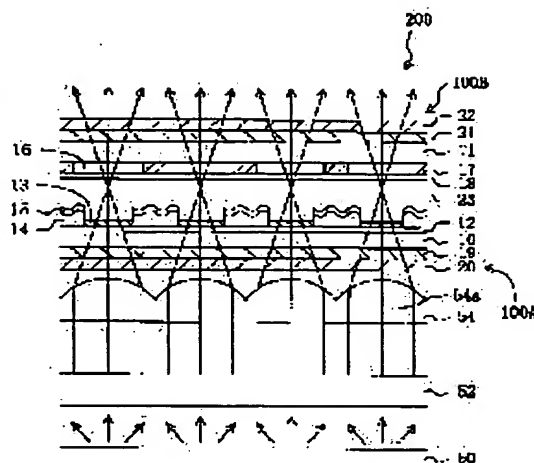
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(54) LIQUID CRYSTAL DISPLAY DEVICE

(57)Abstract:

PROBLEM TO BE SOLVED: To provide a transmission and reflection type liquid crystal display device with improved display brightness in a transmission mode.

SOLUTION: The liquid crystal display device can display both in a transmission mode and in a reflection mode, and is equipped with a liquid crystal display panel 100 having a liquid crystal layer 23 provided between a first substrate 10 and a second substrate 11, and an illumination device 50 disposed in the first substrate 10 side of the liquid crystal display panel. The liquid crystal display panel 100 has a reflection region to reflect the incident light from the liquid crystal layer 23 side and a transmission region to transmit the incident light from the illumination device 50 side in each pixel region. A collimating element 52 and a light-condensing element 54 are further disposed in this order from the illumination device 50 side between the liquid crystal layer 23 side of the first substrate 10 and the illuminating device 50. The spread angle of the diffused light emitted from the illumination device 50 is decreased by the collimating element 52, and the diffused light with a decreased spread angle is condensed to the transmission region of the liquid crystal panel by the condensing element 54.



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[Date of request for examination]

[Date of sending the examiner's decision of rejection]

[Kind of final disposal of application other than the
examiner's decision of rejection or application
converted registration]

[Date of final disposal for application]

[Patent number]

[Date of registration]

[Number of appeal against examiner's decision of
rejection]

[Date of requesting appeal against examiner's decision
of rejection]

[Date of extinction of right]

